IN THE CLAIMS:

Please AMEND claims 1, 7, 10, 16, 21, 27, 31, and 37 as shown below.

1. (Currently Amended) A method for predicting intake manifold pressure, said method comprising the steps of:

obtaining a difference of values of intake manifold pressure and a difference of values of throttle opening;

obtaining a predicted difference of values of intake manifold pressure, through an algorithm of estimation by estimating with fuzzy reasoning, including fuzzy rules determined based on an amount of the difference of values of intake manifold pressure and an amount of the difference of values of throttle opening; and

adding the predicted difference of values of intake manifold pressure, to a value of intake manifold pressure, to obtain a predicted value of intake manifold pressure.

2. (Previously Presented) A method for predicting intake manifold pressure according to claim 1, wherein the difference of values of intake manifold pressure is classified according to a first classification based on its amount into positive one, that of zero or negative one and the difference of values of throttle opening is classified according to a second classification based on its amount into positive one, that of zero or negative one and fuzzy rules are provided respectively for areas determined by the first classification and the second classification.

3. (Previously Presented) A method for predicting intake manifold pressure according to claim 1, wherein in the step of obtaining a difference, a second order difference of values of intake manifold pressure, is further obtained and in the step of obtaining the predicted difference, fuzzy rules are determined based on an amount of the difference of values of intake manifold pressure, an amount of the difference of values of throttle opening and an amount of the second order difference of values of intake manifold pressure.

4. (Previously Presented) A method for predicting intake manifold pressure according to claim 3, wherein a second order difference of values of intake manifold pressure is classified based on its amount into positive one, that of zero or negative one and fuzzy rules are provided respectively for areas determined by three kinds of classifications based on an amount of the difference of values of intake manifold pressure, an amount of the difference of values of throttle opening and an amount of the second order difference of values of intake manifold pressure.

5. (Previously Presented) A method for predicting intake manifold pressure according to claim 1, wherein a value obtained by delaying an input throttle opening value by a time delay is used as an output throttle opening value.

6. (Previously Presented) A method for predicting intake manifold pressure according to claim 1, wherein a relationship between an input throttle opening value and a desired value of throttle opening is modeled using a time delay element and a lag system and a value estimated through the model and the desired value is used as an output throttle opening value.

7. (Currently Amended) A method for predicting intake manifold pressure according to claim 1, wherein a membership function for a consequent part of the ~~algorithm of estimation~~estimating with fuzzy reasoning is a bar-shaped singleton function.

8. (Previously Presented) A method for predicting intake manifold pressure according to claim 1, further comprising the step of filtering between the step of obtaining differences and the step of obtaining the predicted difference.

9. (Original) A method for predicting intake manifold pressure according to claim 8, wherein the filtering is carried out with an adaptive filter.

10. (Currently Amended) An apparatus for predicting intake manifold pressure, said apparatus comprising:

a first device for obtaining a difference of values of intake manifold pressure;

a second device for obtaining a difference of values of throttle opening; and

a fuzzy estimator receiving as inputs the difference of values of intake manifold pressure and the difference of values of throttle opening and obtaining and outputting a predicted difference of values of intake manifold pressure ~~through an algorithm of estimation~~by estimating with fuzzy reasoning, including fuzzy rules determined based on an amount of the difference of values of intake manifold pressure and an amount of the difference of values of throttle opening.

11. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 10, wherein in the fuzzy estimator the difference of values of intake manifold pressure is classified according to a first classification based on its amount into positive one, that of zero or negative one and the difference of values of throttle opening is classified according to a second classification based on its amount into positive one, that of zero or negative one and fuzzy rules are provided respectively for areas determined by the first classification and the second classification.

12. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 10, wherein in the fuzzy estimator a second order difference of values of intake manifold pressure is further used as another input and fuzzy rules are determined based on an amount of the difference of values of intake manifold pressure,

an amount of the difference of values of throttle opening and an amount of the second order difference of values of intake manifold pressure.

13. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 12, wherein in the fuzzy estimator a second order difference of values of intake manifold pressure is classified based on its amount into positive one, that of zero or negative one and fuzzy rules are provided respectively for areas determined by three kinds of classifications based on an amount of the difference of values of intake manifold pressure, an amount of the difference of values of throttle opening and an amount of the second order difference of values of intake manifold pressure.

14. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 10, wherein the apparatus further comprises a module for delaying an input throttle opening value by a time delay, and the delayed value is used as an output throttle opening value.

15. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 10, wherein a relationship between an input throttle opening value and a desired value of throttle opening is modeled using a time delay element and a lag system and a value estimated through the model and the desired value is used as an output throttle opening value.

16. (Currently Amended) An apparatus for predicting intake manifold pressure according to claim 10, wherein a membership function for the consequent part of the ~~algorithm of estimation~~ estimating with fuzzy reasoning comprises a bar-shaped singleton function.

17. (Original) An apparatus for predicting intake manifold pressure according to claim 10, further comprising a filter for filtering an input.

18. (Original) An apparatus for predicting intake manifold pressure according to claim 17, wherein the filter comprises an adaptive filter.

19. (Withdrawn) A method for obtaining a predicted value of a variable, comprising the steps of:

obtaining a difference of values of the variable to be predicted and a difference of values of another variable ahead of the variable to be predicted;

filtering the differences with adaptive filters;

obtaining a predicted difference of values of the variable to be predicted, through an algorithm of estimation with fuzzy reasoning, including fuzzy rules determined based on an amount of a difference of values of the variable to be predicted and an amount of a difference of values of the variable ahead of the variable to be predicted; and

adding the predicted difference of values of the variable to be predicted to a current value of the variable to be predicted, to obtain a predicted value of the variable to be predicted.

20. (Withdrawn) A predicting apparatus comprising:

adaptive filters for filtering inputs; and

a fuzzy estimator receiving as inputs a difference of values of the variable to be predicted and a difference of values of another variable ahead of the variable to be predicted and obtaining and outputting a predicted difference of values of the variable to be predicted, through an algorithm of estimation with fuzzy reasoning, including fuzzy rules determined based on an amount of a difference of values of the variable to be predicted and an amount of a difference of values of the variable ahead of the variable to be predicted.

21. (Currently Amended) A computer-readable medium having a program stored therein, the program is made to perform the steps of:

obtaining a difference of values of intake manifold pressure and a difference of values of throttle opening;

obtaining a predicted difference of values of intake manifold pressure, through an algorithm of estimation by estimating with fuzzy reasoning, including fuzzy rules

determined based on an amount of the difference of values of intake manifold pressure and an amount of the difference of values of throttle opening; and

adding the predicted difference of values of intake manifold pressure, to a value of intake manifold pressure, to obtain a predicted value of intake manifold pressure.

22. (Previously Presented) A computer-readable medium according to claim 21, wherein the difference of values of intake manifold pressure is classified according to a first classification based on its amount into positive one, that of zero or negative one and the difference of values of throttle opening is classified according to a second classification based on its amount into positive one, that of zero or negative one and fuzzy rules are provided respectively for areas determined by the first classification and the second classification.

23. (Previously Presented) A computer-readable medium according to claim 21, wherein in the step of obtaining a difference, a second order difference of values of intake manifold pressure, is further obtained and in the step of obtaining the predicted difference, fuzzy rules are determined based on an amount of the difference of values of intake manifold pressure, an amount of the difference of values of throttle opening and an amount of the second order difference of values of intake manifold pressure.

24. (Previously Presented) A computer-readable medium according to claim 23, wherein a second order difference of values of intake manifold pressure is classified based on its amount into positive one, that of zero or negative one and fuzzy rules are provided respectively for areas determined by three kinds of classifications based on an amount of the difference of values of intake manifold pressure, an amount of the difference of values of throttle opening and an amount of the second order difference of values of intake manifold pressure.

25. (Previously Presented) A computer-readable medium according to claim 21, wherein a value obtained by delaying an input throttle opening value by a time delay, is used as an output throttle opening value.

26. (Previously Presented) A computer-readable medium according to claim 21, wherein a relationship between an input throttle opening value and a desired value of throttle opening is modeled using a time delay element and a lag system and a value estimated through the model and the desired value is used as an output throttle opening value.

27. (Currently Amended) A computer-readable medium according to claim 21, wherein the membership function for the consequent part of the ~~algorithm of estimation~~estimating with fuzzy reasoning comprises a bar-shaped singleton function.

28. (Original) A computer-readable medium according to claim 21, wherein the program further comprises the step of filtering between the step of obtaining differences and the step of obtaining a predicted difference.

29. (Original) A computer-readable medium according to claim 28, wherein the filtering is carried out with an adaptive filter.

30. (Withdrawn) A computer-readable medium having a program stored therein, the program is made to perform the steps of:

obtaining a difference of values of the variable to be predicted and a difference of values of another variable ahead of the variable to be predicted;

filtering the differences with adaptive filters;

obtaining a predicted difference of values of the variable to be predicted, through an algorithm of estimation with fuzzy reasoning, including fuzzy rules determined based on an amount of a difference of values of the variable to be predicted and an amount of a difference of values of the variable ahead of the variable to be predicted; and

adding the predicted difference of values of the variable to be predicted, to a current value of the variable to be predicted, to obtain a predicted value of the variable to be predicted.

31. (Currently Amended) An apparatus for predicting intake manifold pressure, said apparatus comprising:

means for obtaining a difference of values of intake manifold pressure;

means for obtaining a difference of values of throttle opening; and

fuzzy estimator means for receiving as inputs the difference of values of intake manifold pressure and the difference of values of throttle opening and obtaining and outputting a predicted difference of values of intake manifold pressure, through algorithm of estimation by estimating with fuzzy reasoning, including fuzzy rules determined based on an amount of the difference of values of intake manifold pressure and an amount of the difference of values of throttle opening.

32. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 31, wherein in the fuzzy estimator means the difference of values of intake manifold pressure is classified according to a first classification based on its amount into positive one, that of zero or negative one and the difference of values of throttle opening is classified according to a second classification based on its amount into positive one, that of zero or negative one and fuzzy rules are provided respectively for areas determined by the first classification and the second classification.

33. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 31, wherein in the fuzzy estimator means a second order difference of

values of intake manifold pressure is further used as another input and fuzzy rules are determined based on an amount of the difference of values of intake manifold pressure, an amount of the difference of values of throttle opening and an amount of the second order difference of values of intake manifold pressure.

34. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 33, wherein in the fuzzy estimator means a second order difference of values of intake manifold pressure is classified based on its amount into positive one, that of zero or negative one and fuzzy rules are provided respectively for areas determined by three kinds of classifications based on an amount of the difference of values of intake manifold pressure, an amount of the difference of values of throttle opening and an amount of the second order difference of values of intake manifold pressure.

35. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 31, wherein the apparatus further comprises module means for delaying an input throttle opening value by a time delay, and the delayed value is used as an output throttle opening value.

36. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 31, wherein a relationship between an input throttle opening value and a desired value of throttle opening is modeled using a time delay element and a lag

system and a value estimated through the model and the desired value is used as an output throttle opening value.

37. (Currently Amended) An apparatus for predicting intake manifold pressure according to claim 31, wherein the membership function for the consequent part of the ~~algorithm of estimation~~estimating with fuzzy reasoning comprises a bar-shaped singleton function.

38. (Original) An apparatus for predicting intake manifold pressure according to claim 31, further comprising filter means for filtering an input.

39. (Previously Presented) An apparatus for predicting intake manifold pressure according to claim 38, wherein the filter means comprises an adaptive filter.